

WHAT IS CLAIMED IS:

1. A magnetic random access memory (MRAM) device, comprising:
a magnetic tunnel junction (MTJ) stack located over a substrate;
a conductive layer located proximate the MTJ stack and over the substrate; and
a low-k dielectric layer interposing the conductive layer and the MTJ stack.
2. The MRAM device of claim 1 wherein the conductive layer interposes the substrate and the MTJ stack.
3. The MRAM device of claim 1 wherein the MTJ stack interposes the substrate and the conductive layer.
4. The MRAM device of claim 1 wherein the conductive layer is a program line.
5. The MRAM device of claim 1 wherein the conductive layer is a bit line.
6. The MRAM device of claim 1 wherein the low-k dielectric layer comprises Black Diamond.
7. The MRAM device of claim 1 wherein the low-k dielectric layer has a thickness ranging between about 200 angstroms and about 2000 angstroms.
8. The MRAM device of claim 1 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 3.9 or less.
9. The MRAM device of claim 1 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.8 or less.

10. The MRAM device of claim 1 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.0 or less.

11. A magnetic random access memory (MRAM) device, comprising:
a magnetic tunnel junction (MTJ) stack located over a substrate;
a first conductive layer contacting the MTJ stack;
a second conductive layer proximate the first conductive layer; and
a low-k dielectric layer interposing the first and second conductive layers.

12. The MRAM device of claim 11 wherein the first conductive layer interposes the substrate and the second conductive layer.

13. The MRAM device of claim 11 wherein the second conductive layer interposes the substrate and the first conductive layer.

14. The MRAM device of claim 11 further comprising a substrate, wherein the MTJ stack interposes the substrate and, collectively, the first and second conductive layers and the low-k dielectric layer.

15. The MRAM device of claim 11 wherein one of the first and second conductive layers is a program line.

16. The MRAM device of claim 11 wherein one of the first and second conductive layers is a bit line.

17. The MRAM device of claim 11 wherein the low-k dielectric layer comprises Black Diamond.

18. The MRAM device of claim 11 wherein the low-k dielectric layer has a thickness ranging between about 200 angstroms and about 2000 angstroms.

19. The MRAM device of claim 11 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 3.9 or less.

20. The MRAM device of claim 11 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.8 or less.

21. The MRAM device of claim 11 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.0 or less.

22. A magnetic random access memory (MRAM) device, comprising:
a first magnetic tunneling junction (MTJ) stack located over a substrate;
a second MTJ stack located over the substrate and laterally opposing the first MTJ stack;
and
a low-k dielectric material electrically isolating the first and second MTJ stacks.

23. The MRAM device of claim 22 wherein the first and second MTJ stacks are substantially coplanar.

24. The MRAM device of claim 22 wherein the low-k dielectric layer comprises Black Diamond.

25. The MRAM device of claim 22 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 3.9 or less.

26. The MRAM device of claim 22 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.8 or less.

27. The MRAM device of claim 22 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.0 or less.

28. An integrated circuit device, comprising:
a substrate having a transistor located at least partially therein;
a first conductive layer located over the substrate;
a first dielectric layer interposing the first conductive layer and the substrate;
a magnetic tunneling junction (MTJ) stack located over the first conductive layer;
a second dielectric layer interposing the MTJ stack and the first conductive layer;
a third conductive layer located over the MTJ stack; and
a third dielectric layer interposing the third conductive layer and the MTJ stack;
wherein at least a portion of at least one of the second and third dielectric layers proximate the MTJ stack comprises a low-k dielectric material.

29. The integrated circuit device of claim 28 wherein the low-k dielectric layer comprises Black Diamond.

30. The integrated circuit device of claim 28 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 3.9 or less.

31. The integrated circuit device of claim 28 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.8 or less.

32. The integrated circuit device of claim 28 wherein the low-k dielectric layer comprises a material having a dielectric constant of about 2.0 or less.